

Appl. No. 10/707,340
Amdt. dated 07/07/2005
Reply to Office action of 05/05/2005

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended): A process for removing SO₂, NO, and NO₂ from a gas stream comprising the steps of
 - a. oxidizing at least a portion of NO in a gas stream to NO₂ with an oxidizing means resulting in a mole ratio of SO₂ to NO₂ of at least 2.5 to 1, followed by
 - b. scrubbing at least a portion of SO₂, NO, and NO₂ from the gas stream with a scrubbing solution
 - comprising ammonia, and
 - having a ph between 6-5 and 8, and
 - c. removing at least a portion of any ammonia aerosols generated from the scrubbing step from the gas stream with an aerosol removal means.
2. (original): The process of claim 1, wherein said oxidizing means is an electrical discharge reactor.
3. (canceled)
4. (currently amended): The process of claim 32, further comprising the step of oxidizing at least a portion of the NO to HNO₃ with said ~~dielectric barrier~~electrical discharge reactor.
5. (original): The process of claim 1, wherein said oxidizing step is adapted to result in a mole ratio of SO₂ to NO₂ of at least four to one.
6. (currently amended): The process of claim 1, said scrubbing solution

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comprising ammonia, ammonium sulfite, ammonium sulfate, and water
and

having a pH between 65 and 8.

7. (original): The process of claim 1, wherein said aerosol removal means is a wet electrostatic precipitator.

8. (original): The process of claim 1, wherein said scrubbing step results in the formation of ammonium sulfate, the process further comprising the step of withdrawing ammonium sulfate from the scrubbing solution.

9. (original): The process of claim 4, wherein said scrubbing step results in the formation of ammonium nitrate, the process further comprising the step of withdrawing ammonium nitrate from the scrubbing solution.

10. (currently amended): A process for removing SO₂, NO, NO₂, and Hg from a gas stream comprising the steps of

a. oxidizing at least a portion of the NO in a gas stream to NO₂, and at least a portion of the Hg in a gas stream to HgO, with an oxidizing means, followed by

b. scrubbing at least a portion of the SO₂, NO, and NO₂ from the gas stream with a scrubbing solution

comprising ammonia, and

having a pH between 65 and 8, and

c. removing at least a portion of any ammonia aerosols generated from the scrubbing step, and HgO, from the gas stream with an aerosol removal means.

11. (original): The process of claim 10, wherein said oxidizing means is an electrical discharge reactor.

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12. (canceled)

13. (original): The process of claim 10, wherein said aerosol removal means is a wet electrostatic precipitator.

14. (currently amended): The process of claim 10, said scrubbing solution comprising ammonia, ammonium sulfite, ammonium sulfate, and water, and having a pH between 6-5 and 8.

15. (original): The process of claim 14, wherein said scrubbing step results in the formation of ammonium sulfate, the process further comprising the step of withdrawing ammonium sulfate from the scrubbing solution.